

General Product Description

Strenx® P700 is a pressure vessel steel with minimum yield strength of 670 - 700 MPa depending on thickness.

Strenx® P700 is available in four grades, which meet and exceed the requirements of P690Q, P690QH, P690QL1 and P690QL2 in EN 10 028-6.

Typical applications are demanding loadbearing structures exposed for pressure and elevated temperatures.

Dimension Range

Strenx® P700 is available as plate in thicknesses of 4.0 – 100.0 mm, widths up to 3000 mm and lengths up to 14630 mm. More detailed information on dimensions is provided in the dimension program for Strenx® P700 at www.ssab.com.

Mechanical Properties

Mechanical properties in room temperature (20°C)

Thickness (mm)	Yield strength R _{p0.2} (min MPa)	Tensile strength R _m (MPa)	Elongation A ₅ (min %)
4.0 - 50.0	700	770 - 940	14
50.1 - 100.0	670	770 - 940	14

For transverse test pieces.

Yield strength

Minimum yield strength, R_{p0.2}, in MPa, at elevated temperatures.

Thickness (mm)	50°C	100°C	150°C	200°C	250°C	300°C
4.0 - 50.0	670	645	615	595	575	570
50.1 - 100.0	650	625	595	575	555	550

For transverse test pieces according to EN 10 028.

Impact Properties

Min impact energy, transverse test, Charpy V 10x10 mm test specimen ¹⁾	Meet or exceed the requirements for
69 J / -20 °C	P690Q, P690QH
69 J / -40 °C	P690QL1
27 J / -60 °C	P690QL2

¹⁾ Unless otherwise agreed, transverse impact testing according to 10 028. For thicknesses between 6.0 - 11.9 mm, sub size Charpy V-specimens are used. The specified minimum value is then proportional to the cross-sectional area of the specimen compared to a full-size specimen (10 x 10 mm).

Chemical Composition (heat analysis)

C ^{*)} (max %)	Si ^{*)} (max %)	Mn ^{*)} (max %)	P (max %)	S (max %)	Cr ^{*)} (max %)	Cu ^{*)} (max %)	Ni ^{*)} (max %)	Mo ^{*)} (max %)	B ^{*)} (max %)	Ti ^{*)} (max %)	V ^{*)} (max %)
0.20	0.80	1.70	0.020	0.005	1.50	0.30	2.5	0.70	0.005	0.05	0.12

The steel is grain refined. ^{*)} Intentional alloying elements.

Carbon Equivalent CET(CEV)

Thickness (mm)	4.0 - 30.0	30.1 - 100.0
Max CET(CEV)	0.38 (0.57)	0.39 (0.58)

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40}$$

$$CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

Tolerances

More details are given in SSAB's brochures Strenx® Guarantees or on www.ssab.com.

Thickness

Tolerances according to EN 10 029 Class B. More narrow tolerances are available on request.

Length and Width

Tolerances conform to EN 10 029 or to SSAB's standard after agreement.

Shape

Tolerances according to EN 10 029.

Flatness

Tolerances according to Strenx® Flatness Guarantee Class C, which are more narrow than EN 10 029 Class N.

Surface Properties

According to EN 10 163-2 Class B, Subclass 3.

Delivery Conditions

The delivery condition is Quenched and Tempered. The plates are delivered with sheared or thermally cut edges. Untrimmed edges after agreement.

Delivery requirements can be found in SSAB's brochure Strenx® Guarantees or on www.ssab.com.

Fabrication and Other Recommendations

Welding, bending and machining

Recommendations are found in SSAB's brochures at www.ssab.com or consult Tech Support, techsupport@ssab.com.

Strenx® P700 has bending guarantees according to Strenx® Bending Guarantees Class A. Workshop guidelines for Strenx® P700 refer to the same recommendations as for Strenx® 700 E. Strenx® P700 has obtained its mechanical properties by quenching and subsequent tempering. The properties of the delivery condition cannot be retained after exposure to temperatures in excess of 580°C.

Appropriate health and safety precautions must be taken when welding, cutting, grinding or otherwise working on this product. Grinding, especially of primer coated plates, may produce dust with a high particle concentration.

Contact Information

www.ssab.com/contact